

Amendments to the Claims

1-5. (Cancel)

6. (Withdrawn) A method for producing a TMR element which comprises dry etching using a metal film comprising a metal having a specific physical property that its melting point or boiling point, when it is converted into a nitride or carbide is higher than that of in the form of single metal, as a masking material for dry etching, and using a mixed gas of carbon monoxide and a nitrogeous compound as etching gas.

7. (Withdrawn) The method as claimed in claim 6, wherein the metal film is tantalum film.

8. (Withdrawn) The method as claimed in claim 6, wherein the metal film is any one of tungsten film, zirconium film or hafnium film.

9. (Withdrawn) A method for producing a TMR element which comprises dry etching a plurality of laminate films including magnetic film, using a metal film comprising a metal having a specific physical property that its melting point or boiling point, when it is converted into a nitride or carbide is higher than that of in the form of single metal, as a masking material for dry etching, and using a mixed gas of carbon monoxide and a nitrogeous compound as etching gas.

10. (Withdrawn) The method as claimed in claim 9, wherein the metal film is tantalum film.

11. (Withdrawn) The method as claimed in claim 9, wherein the metal film is any one of tungsten film, zirconium film or hafnium film.

12. (Withdrawn) A method for producing a TMR element which comprises fine processing a TMR element using tantalum as a masking material, and a mixed gas of carbon monoxide and a nitrogeous compound as etching gas, wherein a plurality of films including magnetic film composing the TMR element are dry etched.

13. (Withdrawn) The method as claimed in claim 12, wherein a tantalum film is included in a plurality of films including magnetic film composing the TMR element.

14. (Withdrawn) The method as claimed in claim 12, wherein tantalum used as a masking material acts as a component layer for the TMR element.

15. (Withdrawn) The method as claimed in claim 12, wherein a tantalum film used as a masking material acts as a protective film composing the TMR element.

16. (Withdrawn) A method for producing a magnetic device which comprises dry etching using a metal film comprising a metal having a specific physical property that its melting point or boiling point, when it is converted into a nitride or carbide is higher than that of in the form of single metal, as a masking material for dry etching, and using a mixed gas of carbon monoxide and a nitrogeous compound as etching gas.

17. (Withdrawn) The method as claimed in claim 16, wherein the metal film is tantalum film.

18. (Withdrawn) The method as claimed in claim 16, wherein the metal film is any one of tungsten film, zirconium film or hafnium film.

19. (Withdrawn) A method for producing a magnetic device which comprises dry etching a plurality of laminate films including magnetic film, using a metal film comprising a metal

having a specific physical property that its melting point or boiling point, when it is converted into a nitride or carbide is higher than that of in the form of single metal, as a masking material for dry etching, and using a mixed gas of carbon monoxide and a nitrogeous compound as etching gas.

20. (Withdrawn) The method as claimed in claim 19, wherein the metal film is tantalum film.

21. (Withdrawn) The method as claimed in claim 19, wherein the metal film is any one of tungsten film, zirconium film or hafnium film.

22. (Withdrawn) A method for producing a magnetic device which comprises fine processing a magnetic device using tantalum as a masking material, and a mixed gas of carbon monoxide and a nitrogeous compound as etching gas, wherein a plurality of films including magnetic film composing the magnetic device are dry etched.

23. (Withdrawn) The method as claimed in claim 22, wherein a tantalum film is included in a plurality of films including magnetic film composing the magnetic device.

24. (Withdrawn) The method as claimed in claim 22, wherein tantalum used as a masking material acts as a component layer for the magnetic device.

25. (Withdrawn) The method as claimed in claim 22, wherein a tantalum film used as a masking material acts as a protective film composing the magnetic device.

26. (Withdrawn) A method for producing a MRAM using a TMR structure which comprises dry etching using a metal film comprising a metal having a specific physical property that its melting point or boiling point, when it is converted into a nitride or carbide is higher than that of

in the form of single metal, as a masking material for dry etching, and using a mixed gas of carbon monoxide and a nitrogeneous compound as etching gas.

27. (Withdrawn) The method as claimed in claim 26, wherein the metal film is tantalum film.

28. (Withdrawn) The method as claimed in claim 26, wherein the metal film is any one of tungsten film, zirconium film or hafnium film.

29. (Withdrawn) A method for producing a MRAM using a TMR structure which comprises dry etching a plurality of laminate films including magnetic film, using a metal film comprising a metal having a specific physical property that its melting point or boiling point, when it is converted into a nitride or carbide is higher than that of in the form of single metal, as a masking material for dry etching, and using a mixed gas of carbon monoxide and a nitrogeneous compound as etching gas.

30. (Withdrawn) The method as claimed in claim 29, wherein the metal film is tantalum film.

31. (Withdrawn) The method as claimed in claim 29, wherein the metal film is any one of tungsten film, zirconium film or hafnium film.

32. (Withdrawn) A method for producing a MRAM using a TMR structure which comprises fine processing a TMR structure using tantalum as a masking material, and a mixed gas of carbon monoxide and a nitrogeneous compound as etching gas, wherein a plurality of films including magnetic film composing the TMR structure are dry etched.

33. (Withdrawn) The method as claimed in claim 32, wherein a tantalum film is included in a plurality of films including magnetic film composing the TMR structure.

34. (Withdrawn) The method as claimed in claim 32, wherein tantalum used as a masking material acts as a component for the TMR structure.

35. (Withdrawn) The method as claimed in claim 32, wherein a tantalum film used as a masking material acts as a protective film composing the TMR structure.

36. (New) A masking material for dry etching of a magnetic material by using a mixed gas of carbon monoxide and a nitrogenous compound as etching gas, which comprises a metal having a specific physical property that its melting or boiling point, when it is converted into a nitride or carbide is higher than that of in the form of single metal, and wherein the masking material is tantalum and is in contact with the etching gas.

37. (New) A masking material for dry etching of a magnetic material by using a mixed gas of carbon monoxide and a nitrogenous compound as etching gas, which comprises a metal having a specific physical property that its melting or boiling point, when it is converted into a nitride or carbide is higher than that of in the form of single metal, and wherein the masking material is tungsten and is in contact with the etching gas.

38. (New) A masking material for dry etching of a magnetic material by using a mixed gas of carbon monoxide and a nitrogenous compound as etching gas, which comprises a metal having a specific physical property that its melting or boiling point, when it is converted into a nitride or carbide is higher than that of in the form of single metal, and wherein the masking material is zirconium and is in contact with the etching gas.

39. (New) A masking material for dry etching of a magnetic material by using a mixed gas of carbon monoxide and a nitrogenous compound as etching gas, which comprises a metal having a specific physical property that its melting or boiling point, when it is converted into a nitride or carbide is higher than that of in the form of single metal, and wherein the masking material is hafnium and is in contact with the etching gas.